



Hardy Fern Foundation Quarterly



Fall 2017

THE HARDY FERN FOUNDATION

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The Hardy Fern Foundation was founded in 1989 to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. Many rare and unusual species, hybrids and varieties are being propagated from spores and tested in selected environments for their different degrees of hardiness and ornamental garden value.

The primary fern display and test garden is located at, and in conjunction with, The Rhododendron Species Botanical Garden at the Weyerhaeuser Corporate Headquarters, in Federal Way, Washington.

Affiliate fern gardens are at the Bainbridge Island Library, Bainbridge Island, Washington; Bellevue Botanical Garden, Bellevue, Washington; Birmingham Botanical Gardens, Birmingham, Alabama; Coastal Maine Botanical Garden, Boothbay, Maine; Dallas Arboretum, Dallas, Texas; Denver Botanic Gardens, Denver, Colorado; Georgia Perimeter College Garden, Decatur, Georgia; Inniswood Metro Gardens, Columbus, Ohio; Lakewold, Tacoma, Washington; Lotusland, Santa Barbara, California; Rotary Gardens, Janesville, Wisconsin; Strybing Arboretum, San Francisco, California; University of California Berkeley Botanical Garden, Berkeley, California; and Whitehall Historic Home and Garden, Louisville, Kentucky.

Hardy Fern Foundation members participate in a spore exchange, receive a quarterly newsletter and have first access to ferns as they are ready for distribution.

Cover design by Willanna Bradner

HARDY FERN FOUNDATION QUARTERLY

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President's Message

As another year in the garden winds down, I find myself reflecting on what has been accomplished and trying to enjoy the autumnal fade as we move towards winter. It was a particularly dry summer for the Northwest which made moving my garden to the new 10-acre property very challenging. The beginning of our rainy season in late September was very welcome not only by me, but also by a multitude of recently transplanted plants. This larger garden will be a perfect opportunity to create some beautiful drifts of some of my favorite ferns so I have been collecting and sowing spore for the last two years. The first spore sown was a great success, followed by nearly a complete failure after their first transplanting. After receiving much advice, the following crops are faring much better. Throughout this past summer I have been collecting spore from several choice species and cultivars and I am looking forward to another round of sowing soon. Packages of *Athyrium vidalii*, *Blechnum discolor*, *Dryopteris crispifolia* and *Polypodium vulgare* 'Elegantissimum' are just a few that await a chance to grow. The last is an old Victorian cultivar that will not breed true, but I have seen some lovely finely divided sporelings in the UK grown for this fern.

Many thanks to our volunteers and helpers at our Fall Fern Social. This annual event for members featured good food, plenty of conversation, a terrific lecture by our former president and board member, John van den Meerendonk and a huge frond display featuring the best from several member's gardens. Committee chair Linda Pyles has been spearheading the organization of this event for the last several years and once again coordinated a wonderful day to celebrate our common interest.

The end of the year is a great time to consider the Hardy Fern Foundation in your charitable contributions. Your donations help support our efforts to educate the public about the joys of fern cultivation as well as share the history and excitement of new and interesting species and cultivars.

This upcoming year has several projects and equipment needs where your contributions would be a huge assistance including a major upgrade of the HFF website, a new label maker (the current one is 25 years old!), and improvements to the nursery. A gift of any amount is most appreciated!

Thank you!

All the best,
Richie

HFF President

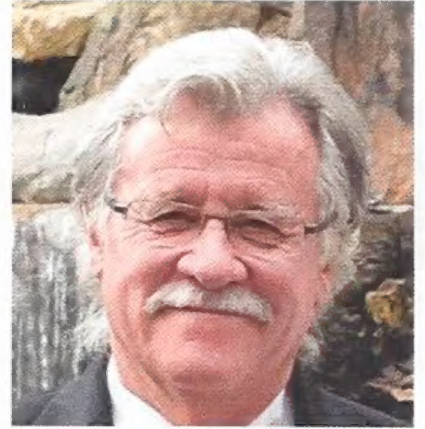




Cryptogramma acrostichoides American parsley fern American rock brake

James R. Horrocks ~ Salt Lake City, UT

{Recently I was unexpectedly hospitalized and when my meals were brought into me, there was always a sprig of parsley on the side of the plate. I always dutifully ate it. Then "Parsley fern" popped into my mind. I guess it's true. You are what you eat.}



Cryptogramma was proposed by

Robert Brown in 1823 and comes from the Greek meaning "hidden" while *gramma* refers to "a line", describing the linear

sori which are hidden or tucked under the incurved margins of the fertile pinnae, often referred to as indusoid or having a false indusium. The species epithet *acrostichoides* describes the sori covering the entire underside of the narrow fertile pinnae.

The entire genus comprises some 10 species of small ferns that are strictly cold-climate rock dwellers growing at high elevations from North America to the Andes and in Europe, Asia, and the Himalaya. *Cryptogramma acrostichoides* is native to northeastern North America from Quebec over to northern Michigan and Minnesota and in the west from Kamchatka, Alaska, down through Canada to Montana, Nebraska southward to New Mexico, Colorado, Utah, and across northern Nevada to California. It is mentioned as being found in Asia by Hoshizaki but it is not found in Japan and is absent from the Himalaya and Europe.

This species is fairly common, found growing often in the sun at high elevations in acidic soil most often among granitic or metamorphic rocks, crevices, ledges or in talus, frequently forming dense patches. The closely related *C. stelleri* inhabits limestone outcrops in shady places and at one time was known only from Mt Timpanogos in the entire state of Utah. *C. acrostichoides* differs in having larger, more leathery fronds arising from a stout ascending rootstock. *C. stelleri* has a long-creeping rootstock producing rather scattered fronds. Hoshizaki mentions the Cascade parsley fern, *C. cascadiensis*, which resembles the evergreen *C. acrostichoides* but differs in having deciduous sterile fronds and a lack of hairs on the upper surface. Yet again we have *C. sitchensis*, greatly resembling *C. acrostichoides* and found in Alaska and western Canada, believed to be a hybrid between *C. acrostichoides* and possibly *C. raddeana* Forman from east Asia. All of these aforementioned species could be confused with each other. Finally, *Cryptogramma crispa* the European parsley fern should be mentioned with its curly margins, that differ from our American species in that it is tetraploid while

C. acrostichoides is diploid. (see photo below) Worth mentioning still is the fact that *C. acrostichoides* has long been recognized, being mentioned in Ray's 1696 Synopsis Methodica Sturpium Britannicarum, which I'm sure most of you have read.

Description: The rhizome is variously described as short-creeping and ascending, branching considerably, appearing as scaly dense, stout, hard tufts, due to the very crowded stipe bases. The stipes are grooved and brown at the base, becoming yellow to green and are over half the length of the frond. The leathery sterile fronds are evergreen through the winter, gradually withering in the early spring. They are ovate-bipinnate to tripinnate, with minute cylindrical hairs on the upper surface including the grooves of the stipe, rachis, and costae, and



Cryptogramma crispera - Photo courtesy of Sue Olsen

spreading, up to 5 inches in length and 1½ to possibly 2 inches wide. The pinnules are elliptic with enlarged vein-tips. The deciduous fertile fronds are much taller and held stiffly erect with yellow stipes reaching up to 8 inches long. They are tripinnate with linear narrow segments, strongly and broadly recurved on the margins. The apex is blunt. Strongly dimorphic in appearance, this fern has a certain charm to it that always attracts the eye. Here in Utah, in upper American Fork Canyon just north of Mt Timpanogos, a towering 11,700 foot impressive mountain where Robert Redford's famous Sundance is located, *C. acrostichoides* grows in proximity to *Aspidotis densa*, another dimorphic species formerly known as *Cheilanthes siliquosa*. I love its common name "Indian's Dream". The two species grow together in the acid soils filling the pockets in granite (more properly quartz monzonite) and serpentine rocks. The two species are sometimes confused mainly because of similar looking fertile fronds, but the sterile fronds in *A. densa* have dark wiry stipes and display pointed sharp tips rather than rounded.

Culture: It may be possible to grow this fern in a cool climate rock garden but it would require a moist soil in spring followed by a moist-dry soil later in the season. The American parsley fern would certainly make an excellent rock garden plant. The soil would have to be acidic to somewhat neutral but never alkaline or growing near calcareous rocks. Granitic or metamorphic rocks are best. However, it is considered difficult under cultivation and cannot survive in areas with hot summers. The author simply enjoys it like so many other alpine plants in the high mountain trails where it has a certain charm to it. I always have to stop and take a closer look.

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Commentary

Joan Eiger Gottlieb ~ Pittsburgh, PA

Thanks are due to James Horrocks (HFF Quarterly, Spring, 2017)¹ for stoking a “frondly” discussion on fern taxonomy, especially at the species and even lower levels. He urges us to avoid frustration over definitions, categorizations, and the scientific jargon that can interfere with enjoyment of our favorite plants. After all, as Shakespeare’s ardent Romeo put it, “A rose by any other name would smell as sweet.” On the other hand, as the thrust of Horrocks’ article “The Joy of Classification...” suggests, we seem to have a love/hate yearning for “making sense of it all” and “setting in order and organizing the natural world.”

The species level is where evolution works its selective magic so well and yet is the hardest to define. In 1964 Justice Potter Stewart, searching for a definition of pornography, said it was hard to put in words, but “I know it when I see it.” A definition that has been a useful guide for me since graduate school in Ernst Mayr’s Systematics course (1956) goes something like this: A species is a group of populations that interbreed freely, in nature, and produce fertile offspring. At the same time, Horrocks reminds us that species are not static, *fait accompli* entities and taxonomy consists of human constructs that may be partly arbitrary and always subject to change. Indeed, species are the moving targets of evolutionary adaptation, especially for populations that become reproductively isolated – think deserts, mountain ranges, islands, and more. I recommend Jonathan Weiner’s classic *The Beak of The Finch*,² as an amazing study of species change in our lifetime.

Biology is loaded with exceptions, changes, and caveats. Any species definition would likely have its share of one or more of those. It is simply the nature of variable, dynamic, changeable life forms and a reality of biological science. For example, polyploidy (three or more sets of parental chromosomes) is rampant among ferns. In addition, sterile hybrids can become fertile again through allopolyploidy (spontaneous chromosome doubling) which restores the matched chromosome pairing needed for meiosis and spore production. Some dry land ferns survive without sex through apogamy (the formation of sporophytes directly from gametophyte body cells without going through water-

requiring sperms and eggs). Finally, how do we explain the recent discovery of a sterile, intergeneric hybrid, *xCystocarpium roskamianum* whose well recognized, parental genera (*Cystopteris* and *Gymnocarpium*) “had been evolving independently for about 60 million years before they got back together again and were able to form this hybrid”? Carl J. Rothfels et al. (2015)³ Clearly, when species or genera retain enough genomic compatibility to enable sexual pairing (even over incredibly long periods of time) these things can and do happen.

Field botanists are well aware of swampy areas where swarms of hybrid *Dryopteris* plants can be found, particularly from pairings among *D. cristata*, *intermedia*, *carthusiana*, and *goldiana*. The sexy gametophyte plant in a typical fern life cycle (even in tree ferns) is a lilliputian, tissue-thin, green thallus with the ephemeral mission of producing gametes, enabling fertilization, and nourishing the early (pre-primary leaf) sporeling. Gametophytes suffer vulnerabilities of size, tenuous rhizoid anchorage, and susceptibility to drought, all of which take a heavy toll on survival. Change (mutation) is likely to be lethal because there is typically only a single set of genes in each cell of the thallus (no backup). Furthermore, sexual reproduction is a “conservative” life function, and change can be likened to “throwing a monkey wrench” into a delicate, finely-tuned machine. Thus, in moist habitats like swamps, where related fern species with overlapping ranges converge, the ground is apt to host gametophytes that are close enough genetically (lacking complete reproductive barriers) to “mix it up.” Biology may not be destiny but neither is it a science of immutability. If you can conjure it, some species (definition aside), has probably tried it. One of the results is the remarkable, adaptive, and still evolving fern flora we have had since the Silurian/Devonian eras, 350+ years ago.

Horrocks’ tempting advice is to “use our intelligence wisely and... not scrutinize things too closely” (e.g., constantly changing nomenclature and definitions), thereby missing the bigger picture of nature’s diversity. And yet, I feel compelled to advocate for the elegant science behind the nuisance of name and placement changes to subspecies, species, genera, and even some families and orders. Just to mention a few recent ones:

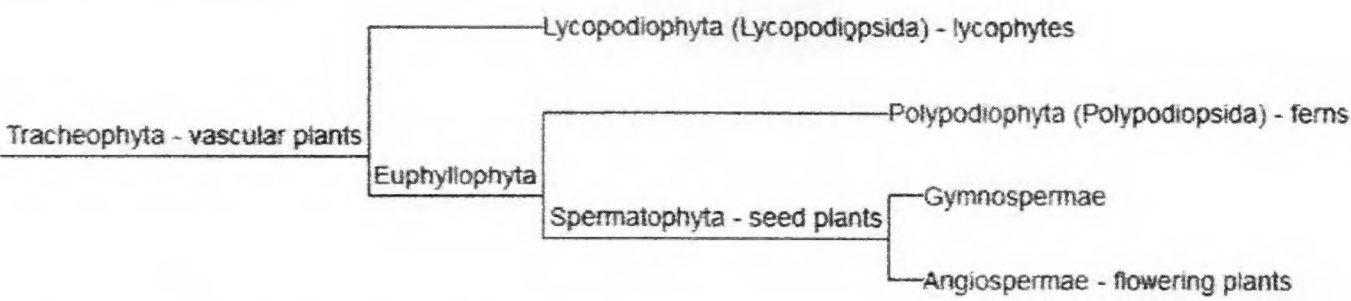
Cinnamon fern (*Osmunda cinnamomea*), a favorite example of frond dimorphism, was found to be a sister species to the other osmundas and is now given monotypic generic rank of its own as *Osmundastrum cinnamomeum*.

Hairy lip fern (*Cheilanthes lanosa*), the only eastern U.S. representative of this mostly desert-dwelling genus, was determined to be paraphyletic (separate, but parallel) to other *Cheilanthes* species, and is now *Myriopteris lanosa*. *Myriopteris* is mainly a northern hemisphere genus and *Cheilanthes* is regarded as mostly a southern hemisphere taxon.

Blechnum was subdivided recently, creating several new genera and resurrecting some older names, many from the 18th and 19th centuries. *Austroblechnum penna-marina* is the new nest for N.Z. little hard fern (*Blechnum penna-marina*). *Struthiopteris* is a resurrected genus name for the western deer fern (*Blechnum spicant*), now *S. spicant*. The tree-forming blechnums are newly placed in *Lomariocycas* (heretofore considered a distinctive section of *Blechnum*), and *Parablechnum* is another revived generic name

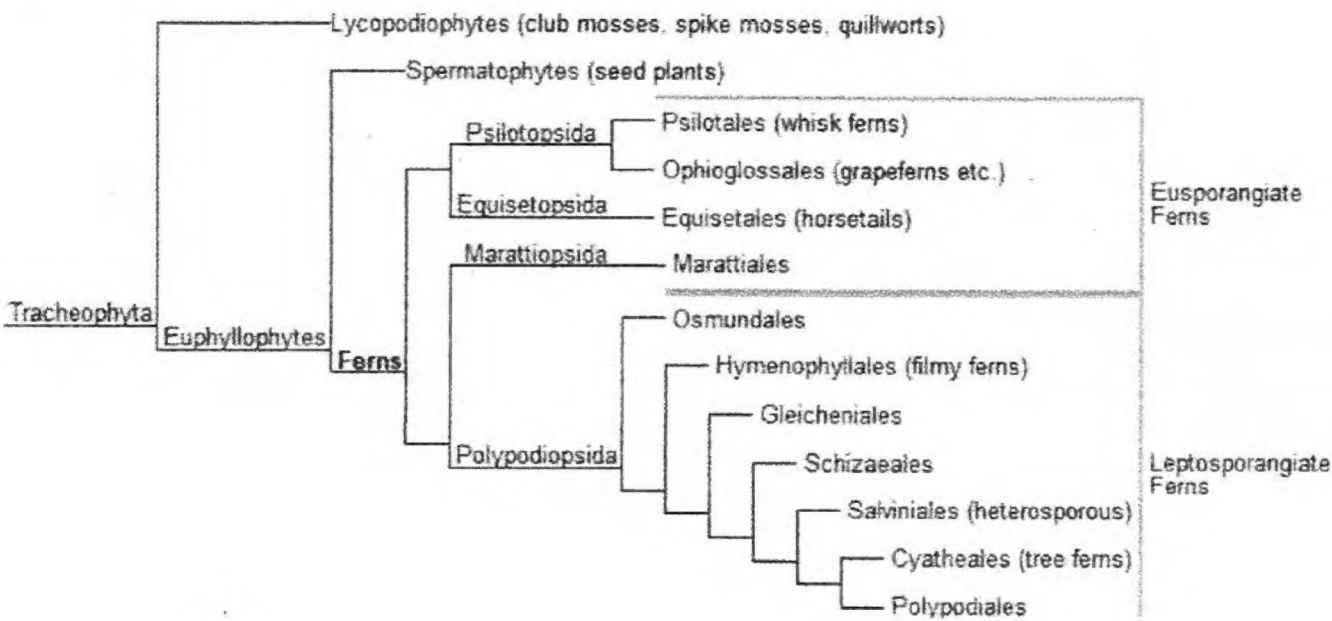
Sample Cladograms Applicable to Ferns
from Wikipedia, based on Smith et al, 2006

The ferns are related to other higher order taxa, as shown in the following cladogram:



Smith's 2006 classification treated the ferns as four classes:

- Psilotopsida 2 orders (whisk ferns and ophioglossoid ferns) ~92 species
- Equisetopsida (Sphenopsida) 1 order, Equisetales (Horsetails) ~ 15 species
- Marattiopsida 1 order, Marattiales ~ 150 species
- Polypodiopsida (Filicopsida) 7 orders (leptosporangiate ferns) ~ 9,000 species



for what is now the largest assemblage of former blechnums. The old, paraphyletic *Blechnum* genus is retained for *B. occidentale* and its difficult-to-distinguish fellow travelers. (Personal communication with Dr. Alan R. Smith, 2017, with appreciation).

Probably the most astonishing taxonomic change is the ranking of *Equisetum* (horsetails and scouring rushes) as one of four **sub-classes of ferns** – albeit retaining their ordinal (Equisetales) and family (Equisetaceae) names.

There is a scientific imperative among taxonomists to strive for monophyletic clades - groups (species, genera, family, etc.) that share a common ancestor and all the descendants (living and extinct) of that ancestor. In other words, systematics is the effort to put together and name groups with closely related genomes and lineages at all levels and ranks. The value of a good classification is well expressed by expert taxonomists like Alan Smith, Kathleen Pryer et al. in their comprehensive 2006 article, “A Classification for Extant Ferns” – “Classifications serve many purposes, among them to provide a genealogical framework in which to identify plants, organize herbaria, retrieve information, and to

conduct many kinds of studies (e.g. evolutionary, morphological, and physiological).”⁴ I would even add ecological to that broad spectrum of studies.

Dedicated, conscientious systematists need no defense. They are experienced scientists who are invested in making relationship-based order out of the millions of living species on earth. Various sources are available to them, the first being their own prodigious morphological knowledge and observational skills, along with dollops of educated judgment in the laboratory, the herbarium, and the field. No character escapes their attention, including the presence, color, shape, and numbers of hairs, scales, sporangiasters (look them up!), and other minute structures on fern fronds. Keep that hand lens handy when you follow along with these extraordinary experts. Those characters (traits), no matter how small, are products of gene expression and clues to common lineage.

Second is the fast-paced accumulation of evidence from molecular and genetic technologies, including isozyme gel electrophoresis (equivalent enzyme analysis) and DNA sequence comparisons using established chloroplast, mitochondrial, and nuclear gene markers. Key is the idea that closely related, monophyletic groups share more characters (genes) than distant or paraphyletic ones do, making them part of a single clade. Frustrating and hair-pulling as it is to absorb nomenclatural and cladistic changes, they are helping science reach a steadily more accurate picture of how our favorite plants are related, how/when they arose, and where they may be headed. I find it a challenge worth pursuing and I laud the talented, devoted scientists willing to do the work.

At the same time, when I am on a field trip or hike, I enjoy finding and admiring an occasional polypody colony without obsessing over whether it is *Polypodium virginianum*, *P. appalachianum*, or the sterile hybrid between the two. All three are reportedly found with equal frequency here in western Pennsylvania and they are devilishly hard to distinguish. Without getting “immersed in too much detail... and losing the joy in enjoy” as Horrocks nicely frames it, I advocate a balance – many walks in the woods with nods of recognition to familiar native plants plus occasional guided forays led by fun-to-watch professionals. This will both satisfy our “fernaticism” and expose us to some of the great science behind the occasional confusion. I guarantee it will boost the joy factor while challenging, not addling, the brain. Best of all, there is no quiz at the end.

References, Related Reading and a Note:

¹ Horrocks, J. R. 2017. The joy of classification - lamentations of a lumper - *Hardy Fern Foundation Quarterly* 27:31-37.

² Weiner, J. 1995. *The Beak of the Finch* - Vintage Books, New York.

³ Rothfels, C. J. et al. 2015. Natural hybridization between genera - *The American Naturalist* 185:433-440. OR

Gottlieb, J. E. 2015. Fern sex after 60 million years - *Hardy Fern Foundation Quarterly* 25:79-85.

⁴ Smith, A. R., K. M. Pryer et al. 2006. A classification for extant ferns. *Taxon* 55:705-731. Note: As this “Letter...” was being written, I received a copy of the latest revision “A community-derived classification for extant lycophytes and ferns” organized by Erik Schuettpelz, Harold Schneider, Alan R. Smith, and a host of other contributors, published (2016) in the *Journal of Systematics and Evolution* 54:1-40.

Bellevue Botanical Garden Celebrates their 25th Anniversary

Hundreds were in attendance to celebrate the Garden's 25th Anniversary on June 10th. The event began with a Flag Honor Guard from local Boy Scout Troop 626, followed by a ribbon-cutting of the new Urban Meadow. Speakers included Bellevue Mayor John Stokes, Bellevue City Council member Conrad Lee, Garden Manager Nancy Kartes, (pictured left) and Treasurer of the BBGS Board of Directors Cleo Raulerson.



Nancy Kartes
*Photo courtesy of
The BBG*



Commemorative Tree Planting
Photo courtesy of Sue Olsen

The event included a special performance by Kogut Butoh dancers, information tables by the Garden's partner groups, a Garden History exhibit in the Sharp Cabin, a children's planting activity, and a Master Gardener information table. It was a wonderful day to celebrate the gift that this beautiful Garden has been to the community for a quarter of a century!

A Long Love Affair: BBG After 25 Years

Wendy Leavitt

Bellevue Botanical Garden (BBG) has become a cherished community treasure since its inception 25 years ago, and it is no wonder. A garden oasis in an increasingly crowded and hurrying world, it delights and inspires visitors, quiets jangling nerves, and restores flagging spirits like nothing else could in the very heart of a major modern city. It is surely one of Bellevue's best gifts to the people who call this city home, and to those who now come from around the world to experience the Garden for themselves.



Asplenium scolopendrium
Photo courtesy of Sue Olsen

Author and gardener, Marty Wingate, chronicled how this glorious gift of a garden came to be in a 2007 book titled, *The Bellevue Botanical Garden: Celebrating the First 15 Years*. A decade after her history of the Garden, the BBG story remains one that deserves updating and retelling again and again. And like all stories about very special gardens, it is a story about very special people.

“Great ideas are not sustainable unless other people come along to support them and keep them alive,” observes Garden Manager, Nancy Kartes. “From the very beginning, that has been especially true for this Garden.”

“It took eight years of planning and development before the Garden even officially opened,” explains BBG founder, Iris Jewett who, with her husband, Bob, first proposed the idea of a botanical garden to their Wilburton Hill neighbors and to the City of Bellevue in the early 1980s. “It takes a lot of enthusiasm and support to keep a project, an idea, alive for eight years before you even get to see the results of all your efforts,” she adds.

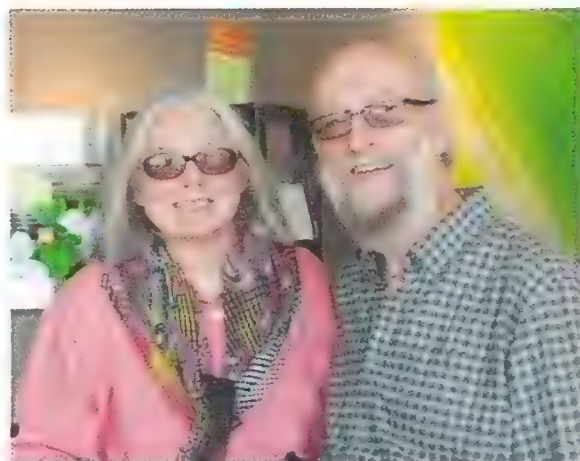
That collective enthusiasm has never waned. Today, the City of Bellevue owns and manages the Garden in close concert with nine separate partner groups, including the Bellevue Botanical Garden Society. Together the team participates in the design, care and operation of the Garden. Volunteers log more than 20,000 hours per year.

This 25th Anniversary of the Garden is a perfect time to celebrate the many people and organizations who made (and are still making) this Garden such a success. Their spirits are everywhere in the Garden they helped to create. See for yourself.

The first place to look is at THE SHORTS HOUSE (now a part of the VISITOR CENTER COMPLEX), which was designed by Paul Kirk and built in 1957 for Cal and Harriet Shorts



Harriet and Cal Shorts
Photo courtesy of The BBG



Iris and Bob Jewett
Photo courtesy of The BBG

who lived here before it became a public garden. When the Jewetts approached them about the idea of a garden on the site, they were all in, according to accounts of that time, donating 7.5 acres of their own property to help make it possible. The City of Bellevue added more land and the Bellevue Botanical Garden began to take shape.

Perhaps no part of BBG is more adored by more people than the now-famous PERENNIAL BORDER, originally created in 1992 by designer Charles Price and his partner, Glenn Withey, with the

help of Carrie Becker and Bob Lilly. For visitors, it was love at the first sight of this huge and lush border, which was then and still is maintained by volunteers from the Northwest Perennial Alliance.

In 2007, Price and Withey had a rare opportunity to redesign their border and they did, virtually from the ground up. Some doting fans of the original border were heart-broken, but the project moved ahead. The Bellevue Botanical Garden Society raised money for new paths and staircases through the border. Area

nurseries, individual gardeners and the Alliance also made donations. Today, the easier-to-access-and-maintain border has become as beloved as its predecessor.

The latest addition to the Perennial Border area is the new Propagation Exhibit which opened in late spring 2016. It offers visitors the opportunity to interact with volunteers as they work, and to see demonstrations of how various plant propagation tasks are done. This new exhibit was made possible in part by a \$20,000 grant to the Northwest Perennial Alliance from the Stanley Smith Horticultural Trust, as well as donations from the Bellevue Botanical Garden Society, the City of Bellevue, and individual donors—yet another example of how teamwork and collaborative initiatives are at the heart of the Garden's success.



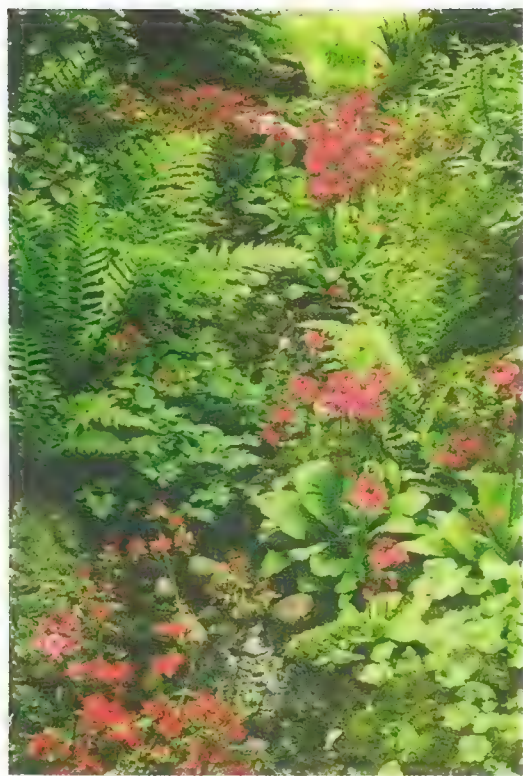
Spring Perennial Border - *courtesy of Sue Olsen*



Photo courtesy of Sue Olsen

In 1992, the Eastside Fuchsia Society planned and planted the range of hardy fuchsias that comprise the FUCHSIA GARDEN – a great favorite of hummingbirds and other fuchsia enthusiasts. The group has maintained this jewel box of a garden ever since. Three Society members are especially remembered for their pioneering work here: Luanna Martin, Ollie de Graaf, and Harry King.

For dahlia lovers, summer at BBG is all about the DAHLIA Display which was created in 1993 by the Puget Sound Dahlia Association and has been maintained by Association volunteers ever since. The dahlia display is sited near another treasure from the past, the Sharp cabin. The cabin (actually a 1920s second story addition to an 1888 structure) was moved from its original location to its current spot in 1989, thanks to the saving efforts of the Bellevue Historical Society and the last renter of the cabin, Scott Parker.



Yao Garden

Photo courtesy of Sue Olsen

THE YAO GARDEN, which honors the relationship between Bellevue and its sister city, Yao, Japan, was a transplant—relocated by the City of Bellevue from its original home at Kelsey Creek Park in 1992 and adapted to its new site by landscape architect, Robert Murase. The traditional wooden gate that marks the entrance was created by Dale Brotherton in 1993. Brotherton refurbished and restored his hand-built gate in 2016.

Dedicated in 1994, THE WATERWISE GARDEN is an award-winning display garden sponsored by Bellevue Utilities which showcases best practices and plantings intended to conserve water, reduce runoff and the use of chemicals, and preserve natural habitat. According to Kartes, Patricia Burgess and Howard and Jil Stenn, the designers of this garden, have remained personally involved ever since.

Nell Scott, president of the Bellevue Botanical Garden Society when it opened in 1992, is credited

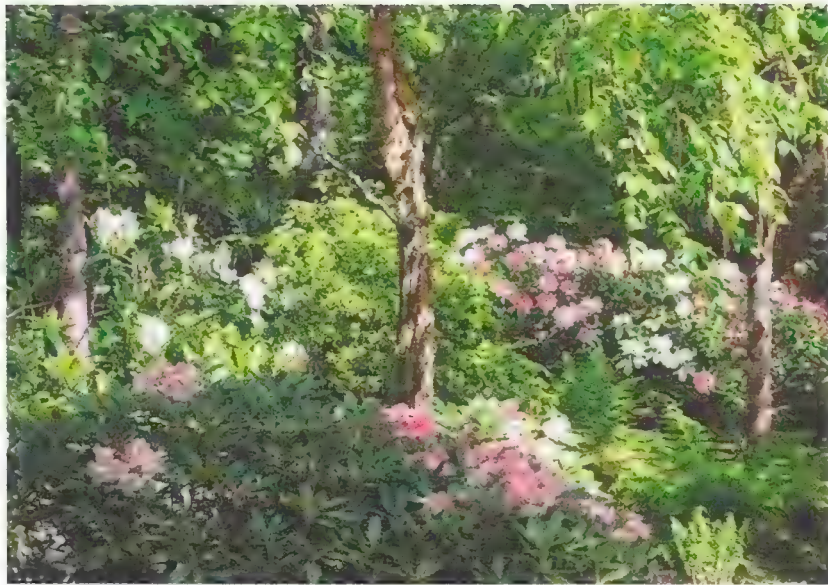
with raising money for the original ROCK GARDEN, which was dedicated in May of 1997. Micheal Moshier created the design for the original rock garden and was also involved with renovations done in 2000 along with Kate Day of the Portico Group. Its granite outcrops and fragrant wildflowers remind many visitors of hiking in the region's alpine meadows. Many members of the Northwestern Chapter of the North American Rock Garden Society are dedicated Rock Garden volunteers.

The TATEUCHI LOOP TRAIL, made possible through the generosity of the Atsuhiko and Ina Goodwin Tateuchi Foundation, offers an easy stroll between the Tateuchi Pavilion (built on the site of Cal Shorts' garden shed), and takes visitors past another favorite feature from the garden's past—the Shorts' root cellar door, which looks for all the world like the door to an elf or Hobbit's den.



Since its creation in 1999, volunteers from the East Lake Washington District of Garden Clubs have helped to care for the NATIVE DISCOVERY GARDEN. This garden highlights how using native plants in urban landscapes can be beautiful, easy to maintain, and ecologically sound.

Like many other areas of the Garden, the RHODODENDRON GLEN reflects the legacy of the original Shorts garden with its more than 50 different rhododendrons that share the space with more than 750 ferns. The generous Shorts donated \$25,000 back in the 1990s to create the fern collection here, which is maintained by volunteers from the Hardy Fern Foundation.



Rhododendron Glen - Photo courtesy of The BBG



Osmunda regalis - courtesy of Sue Olsen

THE RAVINE EXPERIENCE, made possible by a gift from the PJA Foundation, features a suspension footbridge over a steep-sided ravine in the forest. It offers almost-magical treetop views of the native understory, wildlife and the second-growth forest canopy without disturbing the forest floor below. It is sited on land that was acquired for expansion of the garden thanks to support from PACCAR, Inc. The Washington Native Plant Society assists Garden staff in caring for this special place.

THE URBAN MEADOW, the newest enhancement to the Garden, is a beautiful, naturalistic rise featuring large swaths of grasses and perennials. It was made possible in part through the fund-raising efforts of the Bellevue Botanical Garden Society and a

generous grant from the King Conservation District. “The Urban Meadow is a microcosm of how we do things here,” says Kartes. “If you walk through the Meadow you’ll see all BBG partners represented. Every tree, every bench is in honor of someone.”

If you find yourself musing that a great many people who have done projects for the Garden seem to stay on and on, you are right. Their abiding affection and dedication is one of the so-called intangible things that finds tangible expression in Bellevue Botanical Garden. Everywhere made visible, it helps to make the Garden feel more like “a beloved private garden” (as Nancy Davidson Short observed) rather than the public space it is.

So, Happy Birthday, dear Garden, and many happy more!

Reprinted with permission from

The Buzz, Bellevue Botanical Garden Society, Summer, 2017 Volume 24 Issue 2

The Stumpette ~ Story from Old Goat Farm

Greg Graves

Graham, WA

Inspiration and opportunity usually don't occur at the same time but when they do it can be quite fun.

A stumpery is a Victorian era type of fern garden made with the root stumps of trees as an architectural element. Years ago my friend, Pat Riehl created a stumpery on Vashon Island. Shortly thereafter the Hardy Fern Foundation



created a stumpery in their display at the Rhododendron Species Garden in Federal Way, WA. Both stumperies have about 150 stumps in them and are about an acre. My good friend, John van den Meerendonk was the designer as well as president of the Hardy Fern Foundation at the time so I had the opportunity to see some of the installation. Richie and I were carpooling to work from nearby in those days so it was an amazing process to watch the stumps being strategically placed and then planted with ferns and companion plants. Some of these stumps were up to 10,000 lbs.

It has now been several years since the initial plantings and the gardens have become these very magical places. Because of the natural elements they look like they have always been there looking just like they are now. I try and visit both whenever I get the opportunity because they are such unique gardens.



Now comes my opportunity. My neighbor decided to clear a part of his lot and cut down twelve big trees to make room for a building. Rather than get upset about the trees I just asked him if I could have the stumps. He of course said yes because he wasn't sure how he was going to dispose of them. He said he would bring them over so I cleared a space to place them back in my woods. After breaking two winches trying to get them on a flat bed the whole project got put on hold for about a year.



Then earlier last spring I heard an excavator working on a new driveway on the other side of the woods so I walked over and asked if he would be able to move a few stumps from one side the street to the other. Long story short, he said yes so for a very small fee he moved them right where I wanted them. Being a gardener and not having a big budget all my projects need to be done on the cheap. It seems like opportunities come along at just the right time.

It was also May so not the right time to plant so over the course of the summer I started to hoard plants that would work for this planting in the nursery. Nice to have a nursery. Later in the summer I brought in 5 truck loads of gravel to make paths going into the woods then 5 yards of soil for planting. Last September we planted over 400 plants in the new area. There are 35 different hardy ferns and the rest are companion plants. I wanted it to blend into the woods so I also used a number of native plants.

The other little challenge I forgot to mention is we have about 100 birds, 70 chickens plus peacocks, ducks, guinea hens and turkeys. They all have access to the woods. They make gardening difficult so I screened off an area where the stumps are. The area is about 25 feet wide and 65 feet long. I used a 3 foot tall mesh netting that is barely visible so it blends into the other part of the woods nicely. The next challenge was access so my partner Gary built two stone gates, one to come in and the other to leave. The stone also looks very natural and most came from the site while we were planting. The garden is on glacier till so no shortage of rock. Every time you dig a hole you get rocks.



It's been just about a year since the original planting and it has proven to be quite a nice little secret garden in the woods. It is much smaller in scale than the two stumperies that inspired me so it is more of a stumpette but for me it is just as magical. Thanks to Pat, John and Richie for the inspiration and thanks to my neighbors for the opportunity.

All photos courtesy of Greg Graves

Pat Riehl's suggested ferns for your stumpery

Pat Riehl

Vashon Island, WA

This is a partial list including only those that would be fairly easy to find.

Adiantum aleuticum, *A. venustum*, *A. x mairisii*, and *A. x tracyi*

Arachniodes standishii

Asplenium trichomanes

Athyrium otophorum, *A. flix-femina* (all of them), *A. niponicum* (all of them)

*Blechnum penna-marina**, *B. spicant* and *B. niponicum*

Dryopteris crassirhizoma, *D. championii*, *D. erythrosora* and *D. sieboldii*

Phyllitis scolopendrium

*Polypodium glycyrrhiza** and *P. scolopendrium*

Polystichum braunii, *P. makinoi*, *P. munitum*, *P. neolobatum*, *P. polyblepharum*, *P. tsus-simense* and *P. setiferum*, "Bevis Group" and "Divisilobum Group",

*Pyrrosia**

Selaginella kraussiana

Woodwardia fimbriata and *W. unigemmata*

I try to grow epiphytes on the stumps themselves. (Marked with an *) The terrestrials are grown at the base of stumps. My reasoning is that is how they tend to grow in nature. Though I have tried a few on stumps if the spot is deep enough to hold enough soil to increase the chances the fern will survive. I have *D. erythrosora* and *Phyllitis scolopendrium* growing on stumps and have since the beginning. They have done fine. *Blechnum penna-marina* has done the climbing on its own.

Shades of Green

Jo Laskowski

Seattle, WA

Some places are just so positively brilliant that you wonder why the world isn't populated with more of them. The source of this ponder is the Bloedel Reserve in Washington state, where a little over half of its 150 acres is second growth forest, and the remainder is altered landscapes of ponds, meadows, and gardens. It's hard to believe that from the megalopolis that's Seattle this Nirvana can be reached by a thirty-minute ferry ride and a short drive.



Blechnum spicant - Photo courtesy of Sue Olsen

Located on the north end of Bainbridge Island in Puget Sound, Bloedel Reserve is a public landscape whose mission is to provide a tranquil and contemplative experience of nature. Prentice Bloedel, an early pioneer in renewable resources and sustainability in the timber industry, and his wife Virginia, purchased the house and acreage in 1951. During the 30 year Bloedel residency, they gradually transformed the former logging site into a multilayered, interconnected series of landscapes that celebrate the natural cycles of growth, decay, and regeneration.

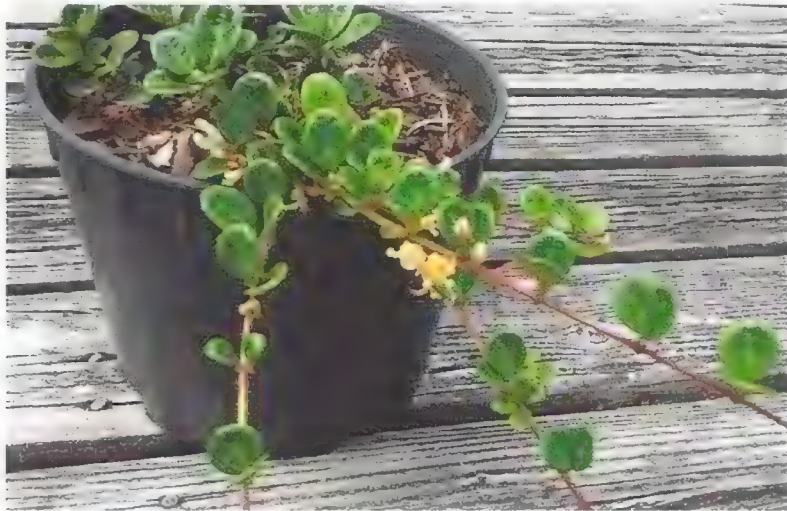
To achieve his vision, Prentice Bloedel worked with numerous landscape architects, including Thomas Church, Richard Haag, Koichi Kawana, Fujitaro Kubota, and Iain Robertson, whose discrete projects often evolved under Bloedel's direction to later designers. Haag's extensive work includes the Moss Garden, the Garden of Planes, and the Reflection Garden, where he built on Church's initial design. Haag's bird marsh connects these and other northern gardens with the comparatively untouched woodlands to the south. Throughout the Reserve is a Western interpretation of an Oriental attitude toward nature, with each designer using plants, earth, and water in ways that reflect the genius of the place. The Bloedel family resided there until 1987; the property is now managed by the University of Washington as a public garden.

tclf.org/landscapes/bloedel-reserve

On Friday, June 2, 2017, Bloedel's Director of Grounds and Horticulture, Andy Navage, was the guest speaker at Hardy Fern Foundation's annual Fern Fest. He was there to talk about some of the woodland treasures that he especially enjoys.

The plant names fell easily from his lips and images flashed across the screen. Species rhododendrons, like *R. excellens* and *lindleyi* and *keysii* and *strigilosum* and *ririei*. *Mahonia* and *Schefflera* and *Hydrangea*, and a shrub whose name did NOT fall gracefully from my lips—*Rostrinucula dependens*. I finally settled for pronouncing it rāw strī NŪH kēw lŭh. I dare anyone to say otherwise.

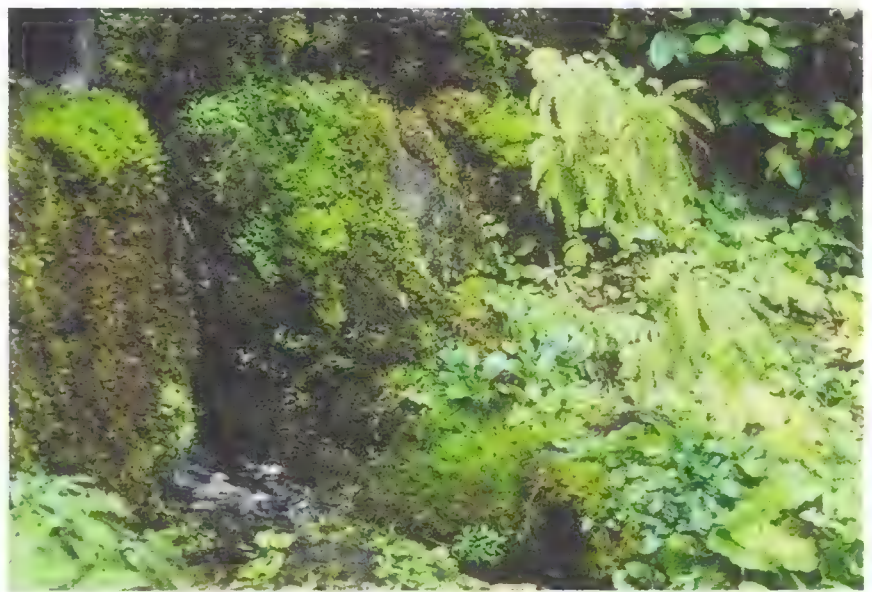
We saw *Magnolia*, and trees that are native to Chile, like *Drimys winteri* and *Crinodendron hookerianum*. What would a woodland be without perennials? *Trillium* and *Epimedium* and *Podophyllum* abounded. *Podophyllum* are commonly called May apples, and it's an accurate description of both the fruit and the bloom time. We saw *Aconitum hemsleyanum* and *Anemonella thalictroides*, and the rather more well-known *Bergenia omeiensis*.



Lonicera crassifolia is an introduction from China, behaving nothing like the honeysuckles most of us know. (photo left) This one grows as a groundcover, displaying its joyful yellow and orange flowers on stems that chug resolutely along, forming a patch only a few inches high and a few feet across.

Lilies and woodland orchids popped up. *Cardiocrinum giganteum* can produce a twelve-foot stalk to bear its robust and fragrant, white flowers. *Nomocharis* and *Paris*

are lilies both. *N. pardanthina* carries a single flower that looks deceptively like that of an orchid. *Paris* are close relatives to *Trillium*, and it's interesting to know that they developed in ecologically similar sites in China to those of North American *Trillium*. Maybe not so odd that they look similar. Andy likes *P. polyphylla* and *P. thibetica*.



Adiantum wall - Bloedel Reserve
Photo courtesy of Sue Olsen

But wait—why would there not be ferns? Well, there were! *Blechnum wattsii* and *Blechnum chilense* and *Woodwardia unigemmata* and *Onychium japonicum*. Bobbing around in a sea of churning names, the familiar ferns loomed like a life preserver. It's worth noting that an abundance of the unfamiliar that Andy showed us had their origins in China, reminding me once again that the Pacific Northwest is astonishing in its ability to cultivate these imports.

In the course of [our] forays we found the land itself marvelously varied... We found single plants and colonies of fragile woodland species, mosses, ferns, a world of incomparable diversity. We found that plants often have a way of arranging and disposing themselves with a harmony of color, texture and form when left to themselves.

Prentice Bloedel, 1980

The tip of the iceberg was what we saw on that Friday night, as far as the plant life of Bloedel was concerned. Knowing that makes it all the more pressing to get there in person, to allow yourself the luxury (which it should not be, in my humble opinion) of melting into the tapestry that's been, and continues to be, woven there. And woven, mostly, out of shades of green.

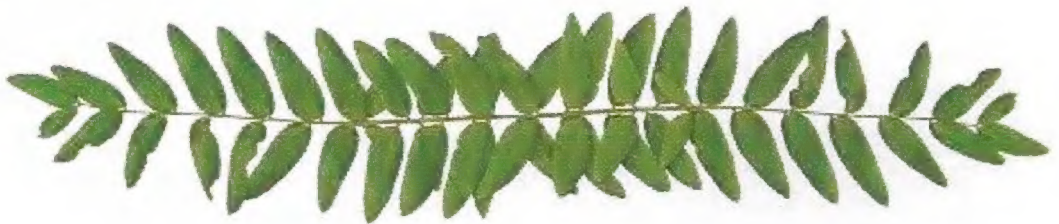


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To everyone who
helped to make our
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Galadriel Day	Virginia B Reynolds
Emily Dexter	Patricia Roberts
Betsy Evans	Jacob & Hollie Schimberg
Sara Farinelli	Linda Sedgley
Giovanni Fazi	Anne Seidel
Lindee Fitzpatrick	Michael Sonnek
Lory Henning	Marie A Spearman
Cathy Higgins	Dwayne Andrew Stocks
Victoria Jennings	Mark Williams
Mark Leichty	Nancy Wood
Ann LeVasseur	Nancy Wyatt
Una McAlinden	



~ In memory of Loyd Jacobs ~

Naud Burnett

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